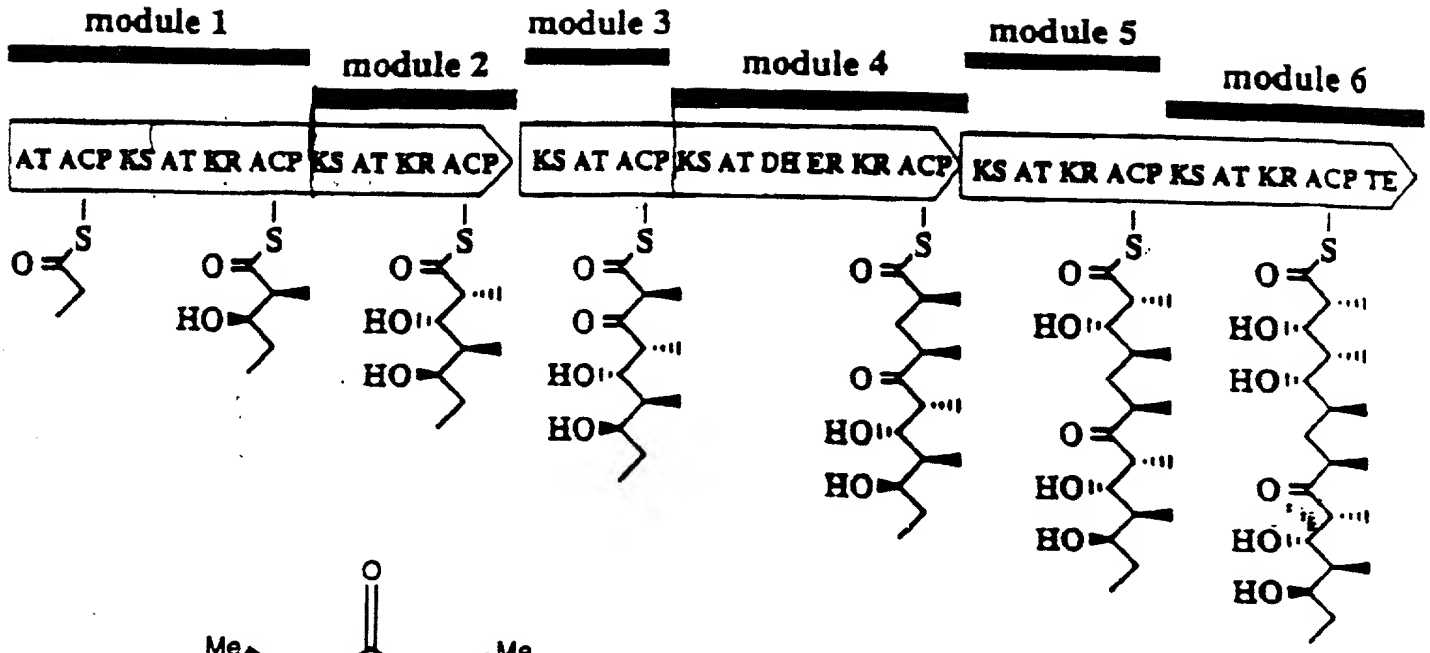
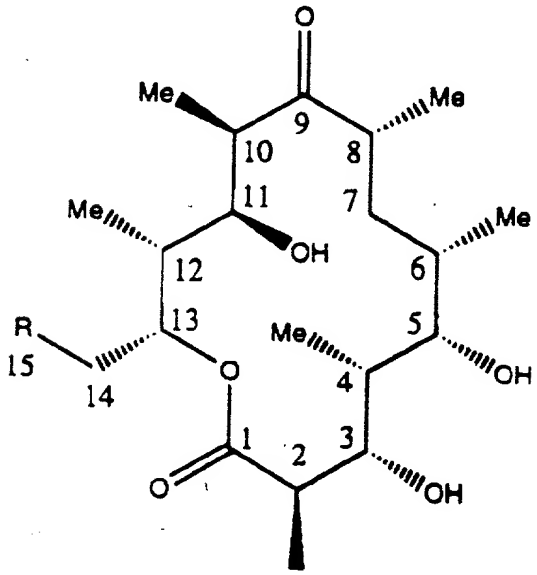
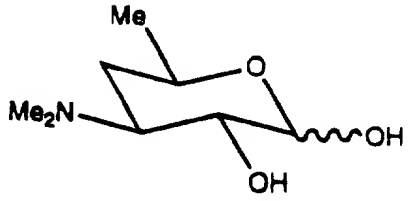




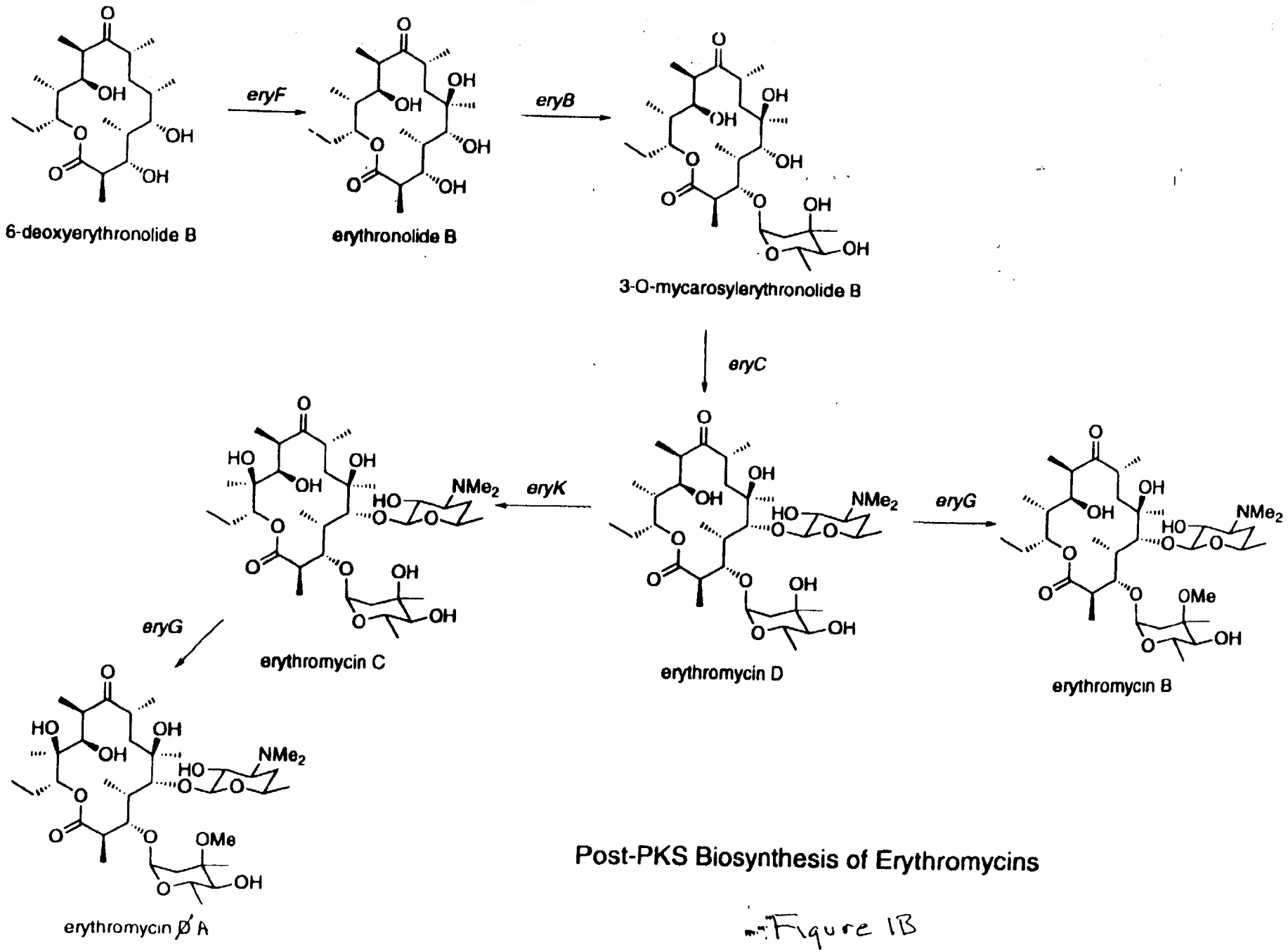
R = Me: 6-deoxyerythronolide B
R = H: 8,8a-deoxyoleandolide



D-desosamine

L-cladinose

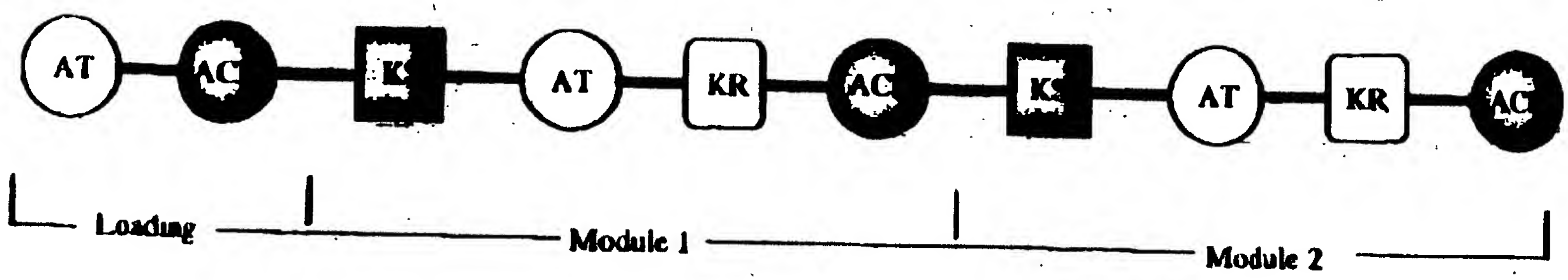
FIGURE 1A



Post-PKS Biosynthesis of Erythromycins

Figure 1B

DEBS1:



Generic Modular PKS

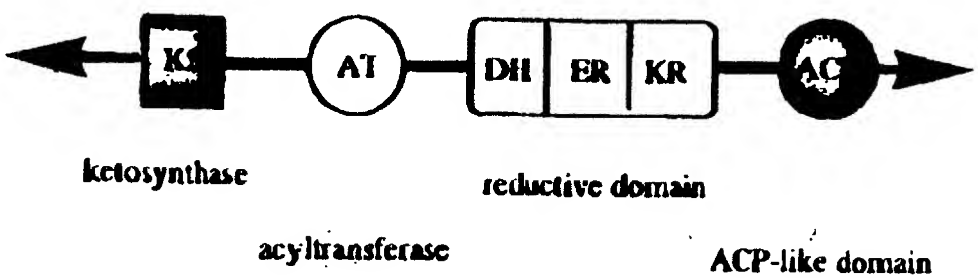


FIGURE 2

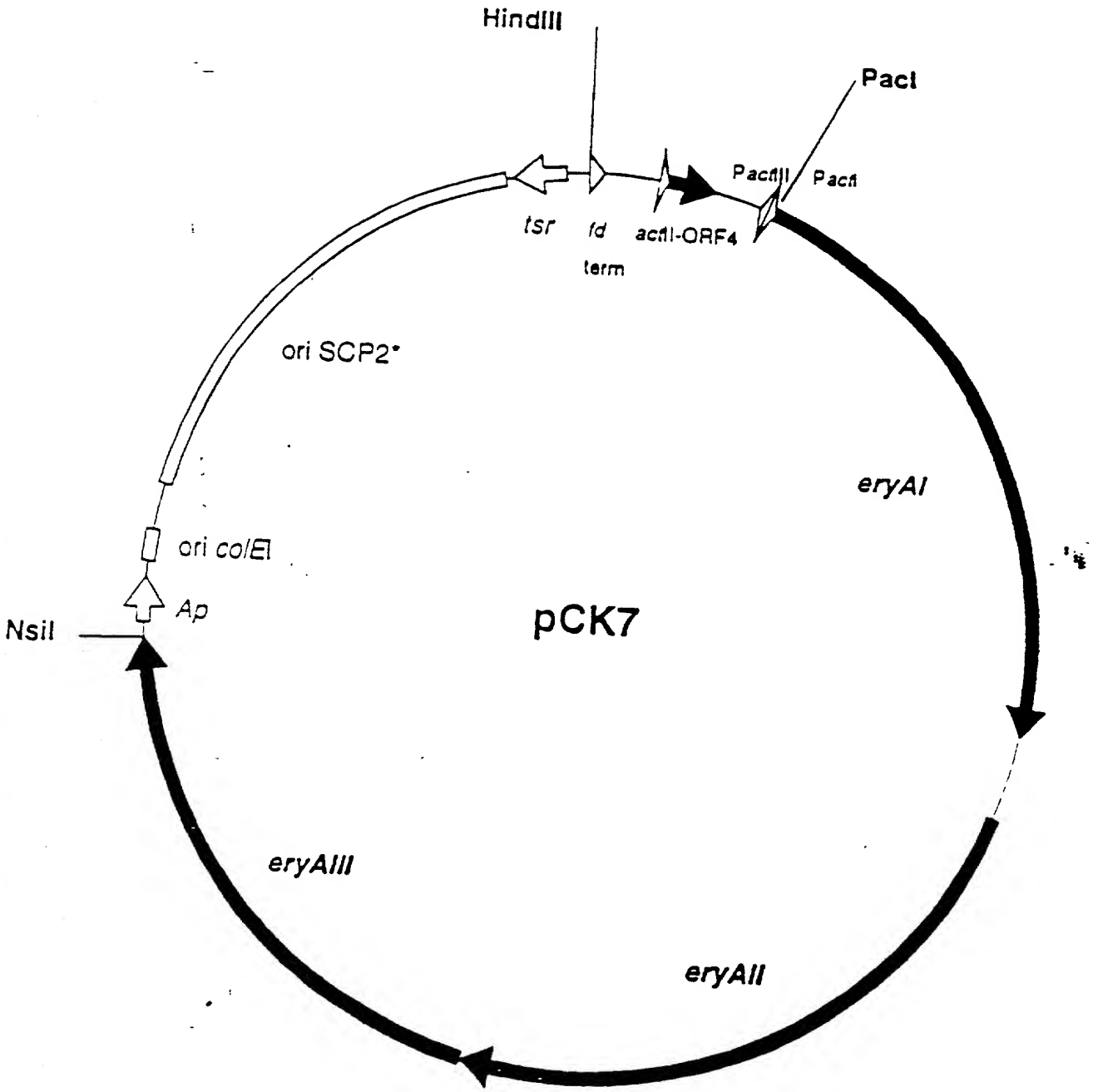
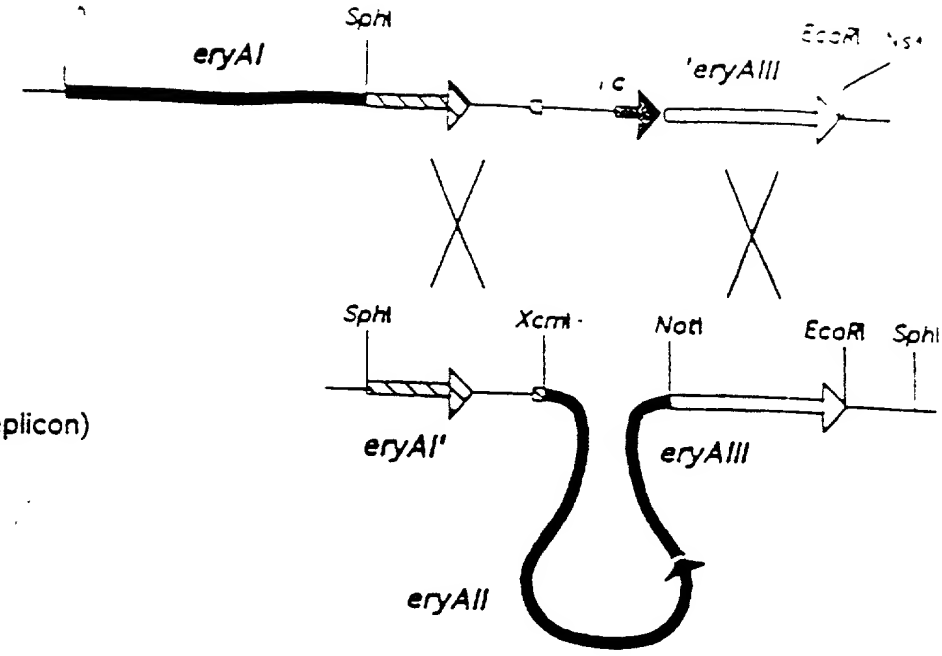

HindIII
PacI
PactIII
Pact
tsr
fd
term
actII-ORF4
ori SCP2*
eryAI
ori colE1
Ap
NsiI
pCK7
eryAIII
eryAII

FIGURE 3

RECIPIENT: pCK5
(Ap^R, Tc^R)



DONOR: pCK6
(Cm^R, temperature-sensitive replicon)

Ap^R, Cm^R @ 30°C

Ap^R, Cm^R @ 44°C

Ap^R @ 30°C

Ap^R, Cm^S, Tc^S @ 44°C

FIGURE 4

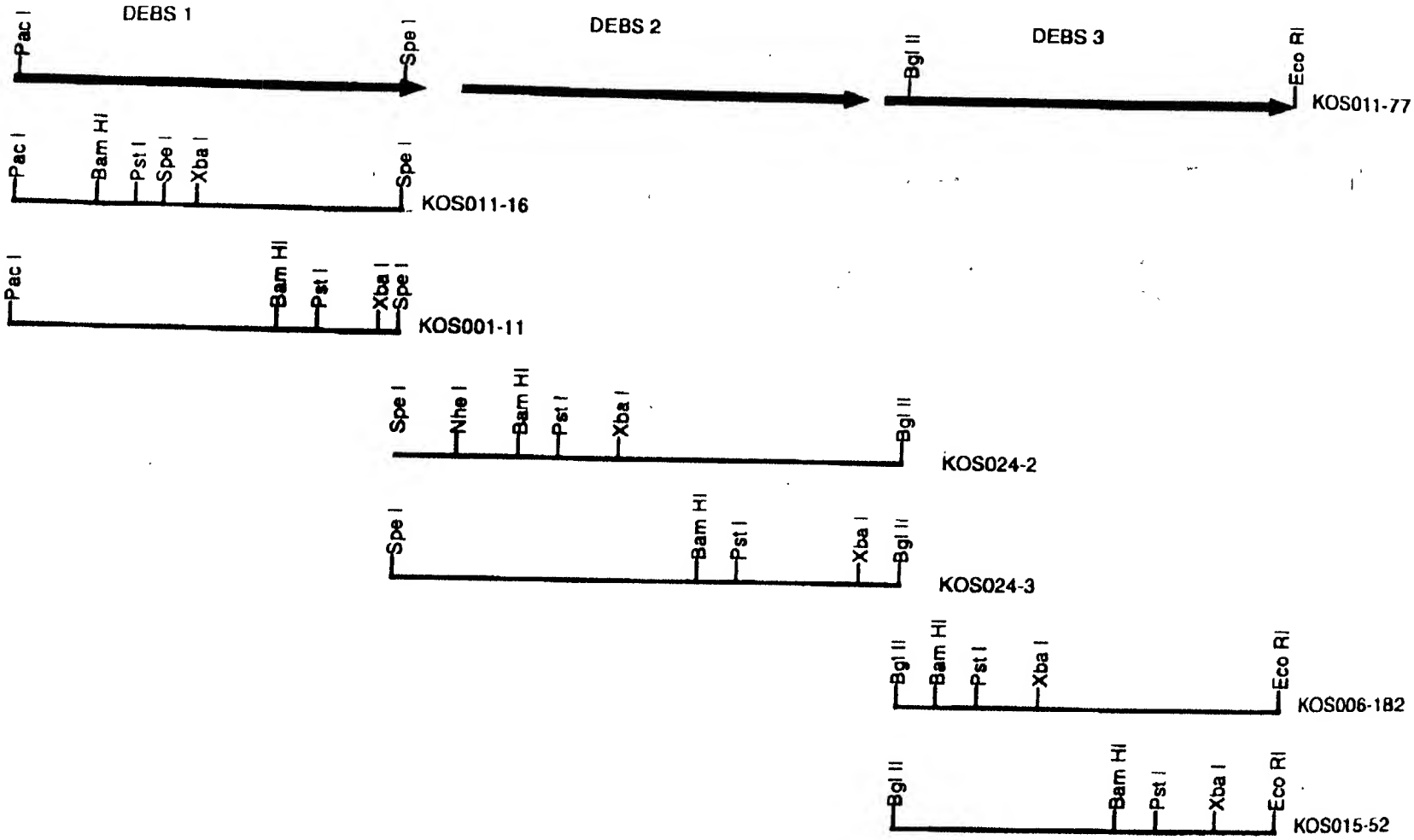
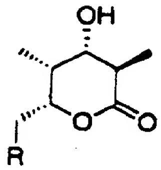


Figure 4



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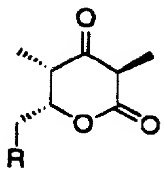

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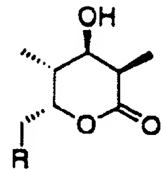

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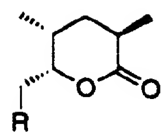

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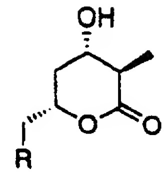

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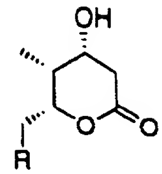

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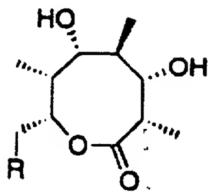

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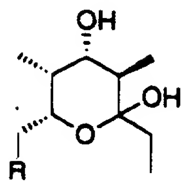

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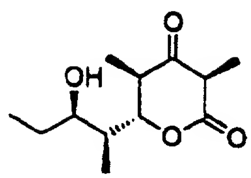

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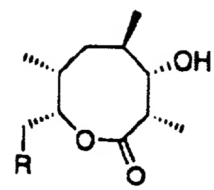

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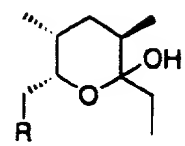

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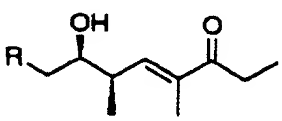

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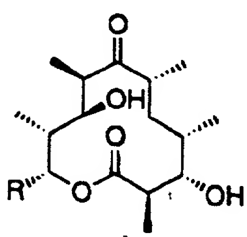

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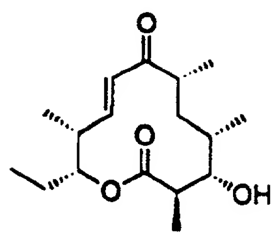

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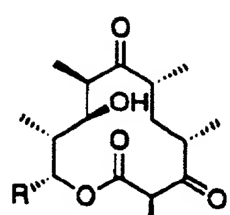

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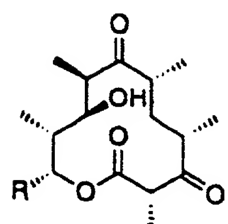

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FIGURE 6A

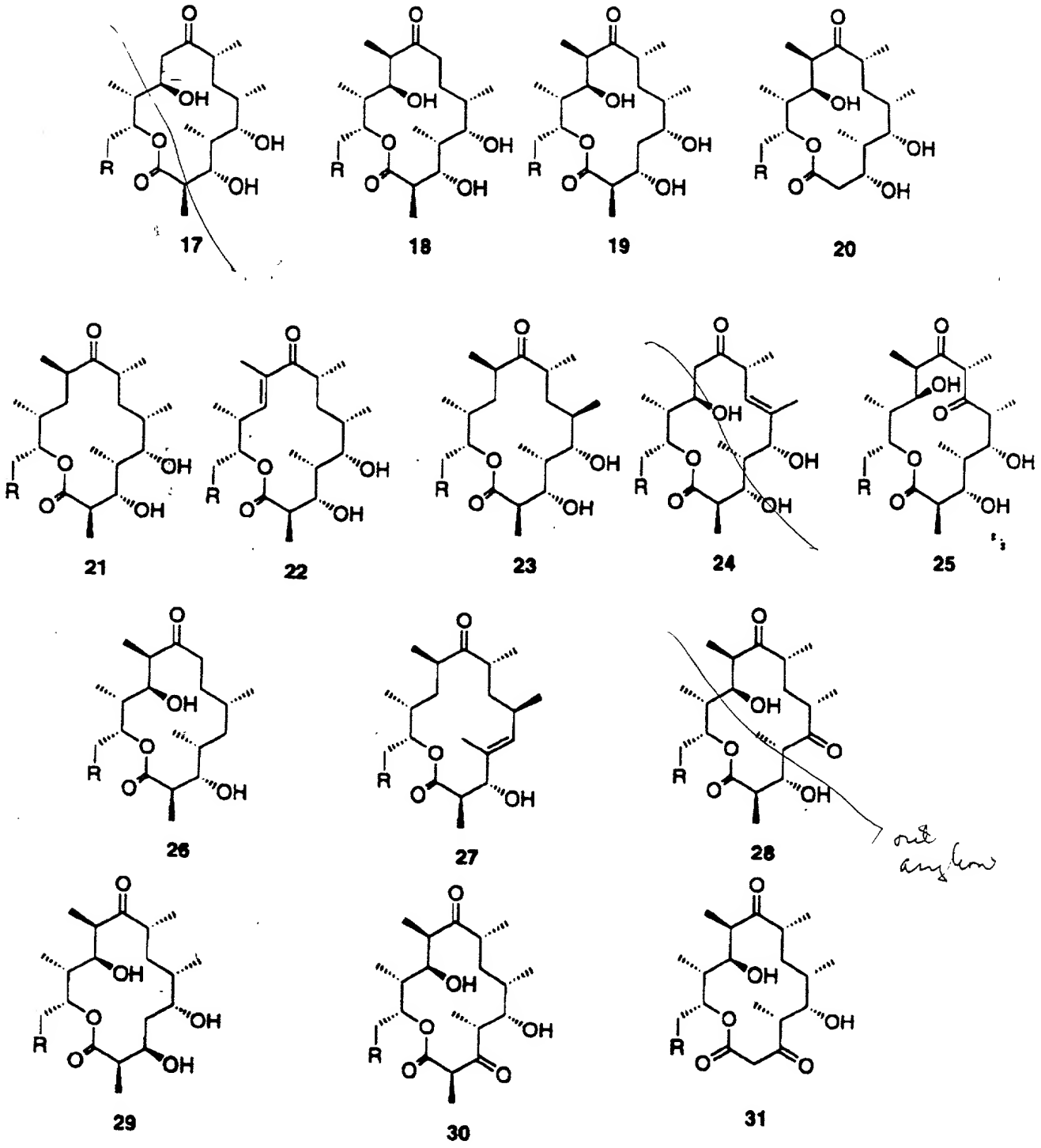
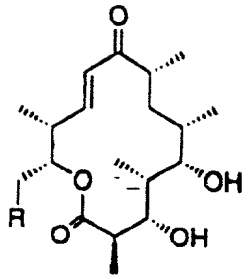


FIGURE 6B



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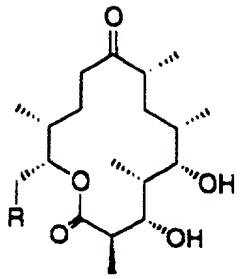

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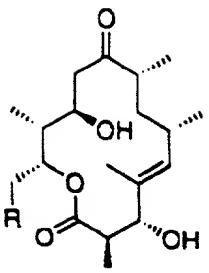

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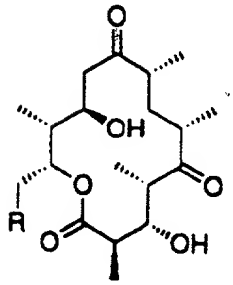

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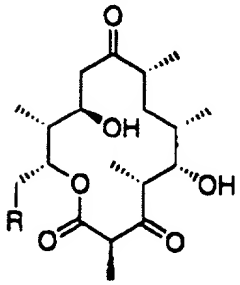

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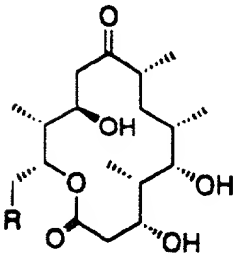

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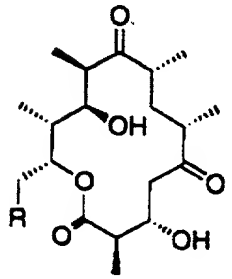

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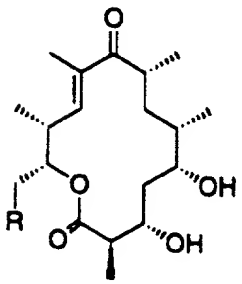

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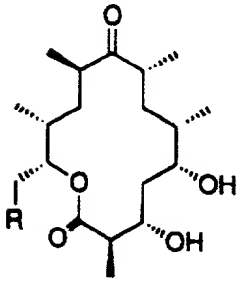

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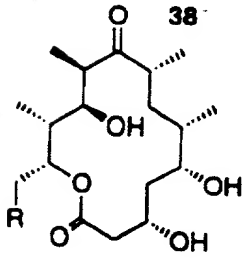

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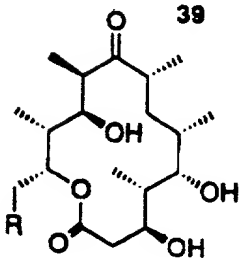

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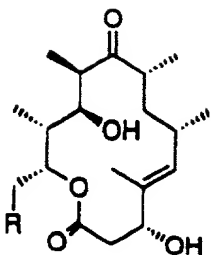

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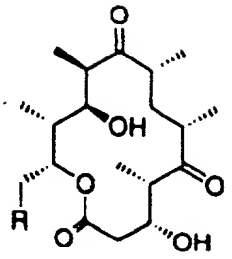

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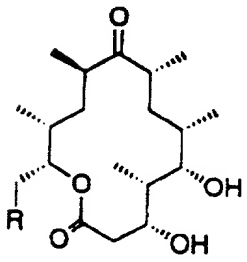

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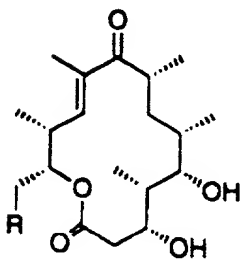

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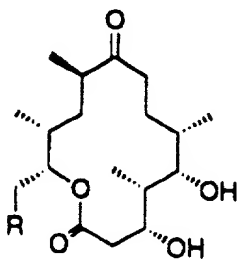

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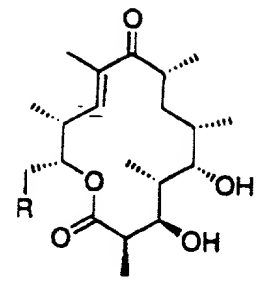
FIGURE 6C



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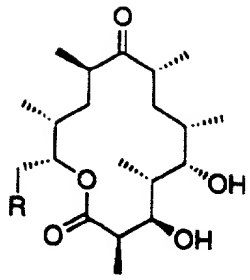

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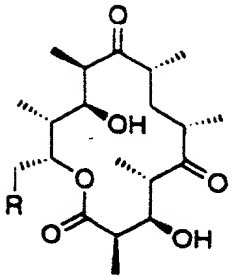

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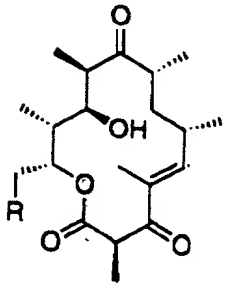

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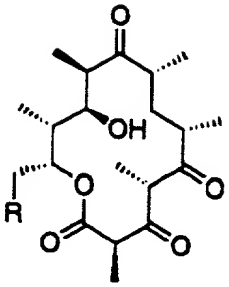

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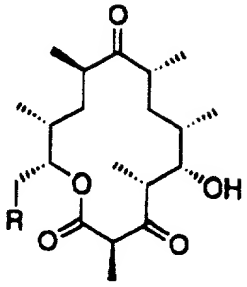

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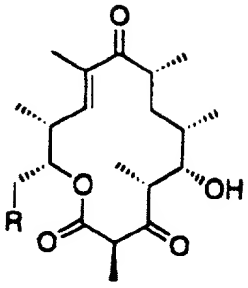

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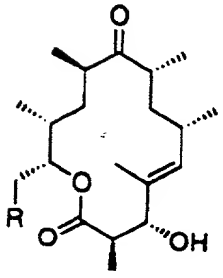

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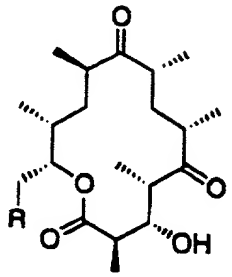

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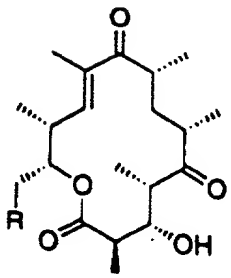

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FIGURE 6D

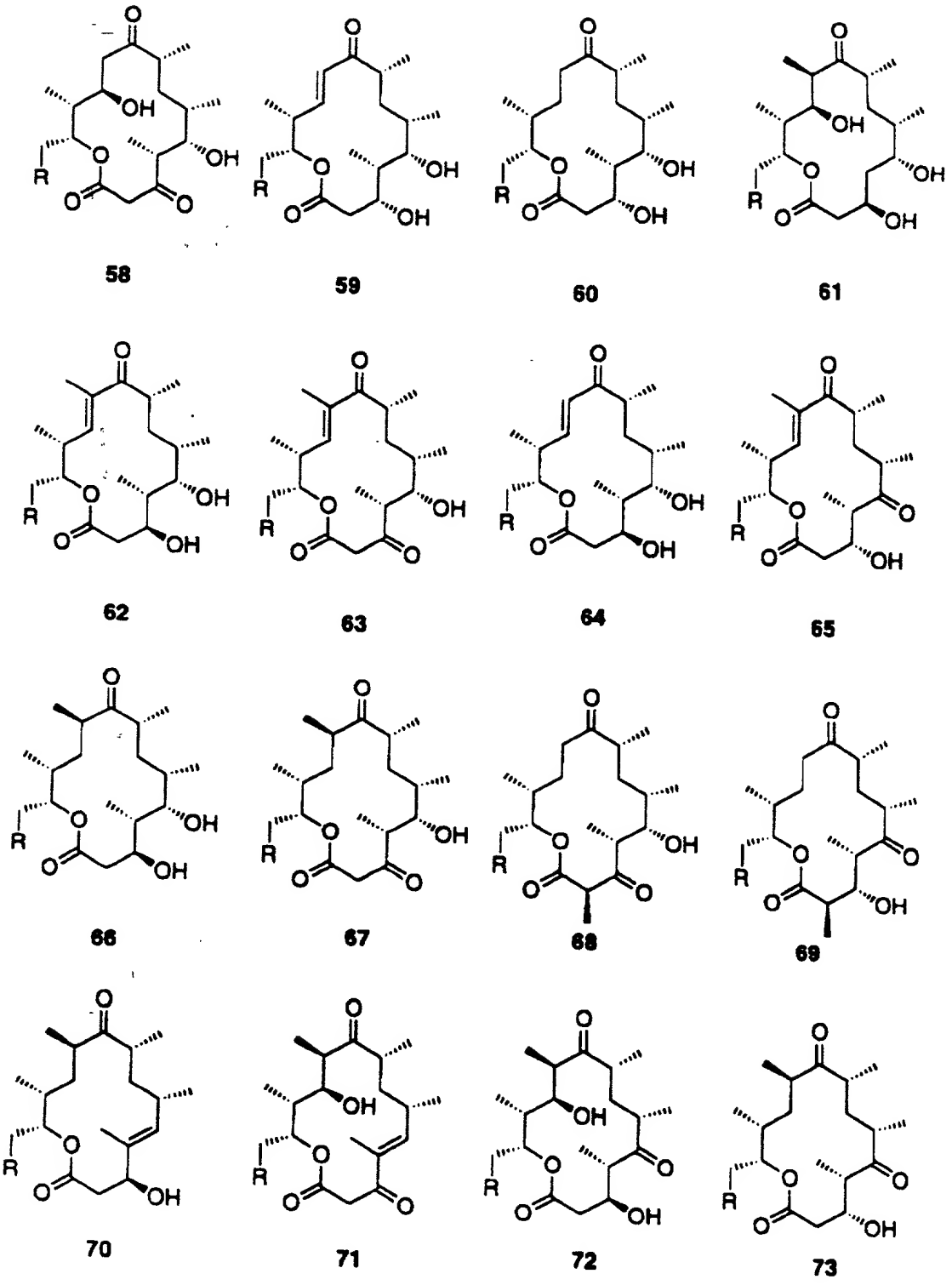
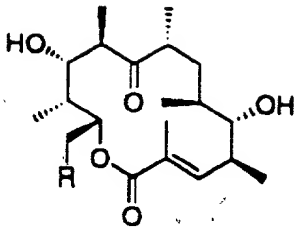


FIGURE 6E



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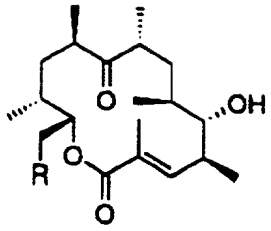

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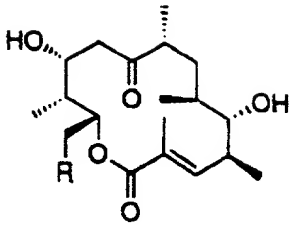

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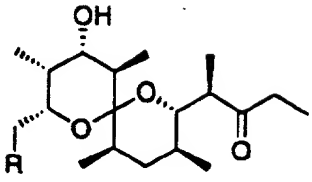

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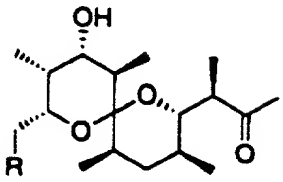

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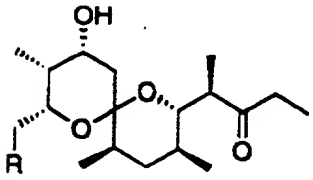

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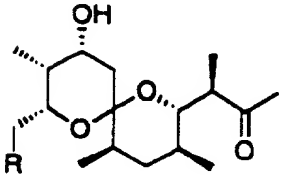

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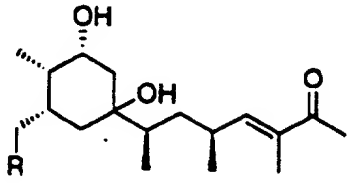

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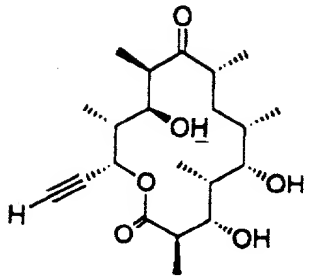
FIGURE 6F



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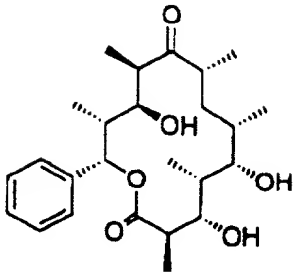

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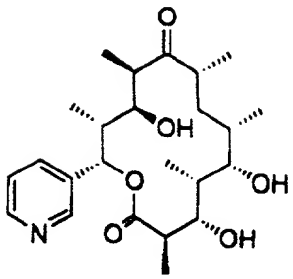

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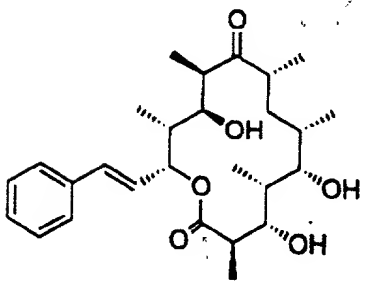

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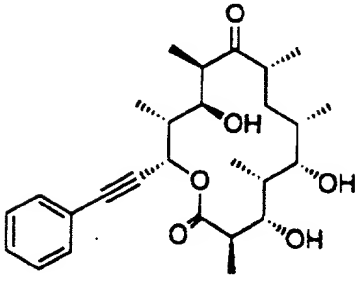

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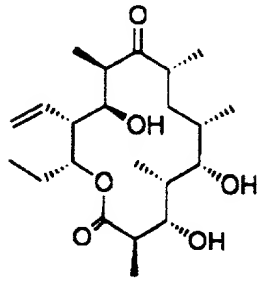

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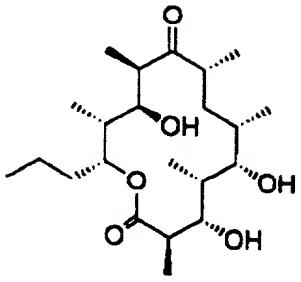

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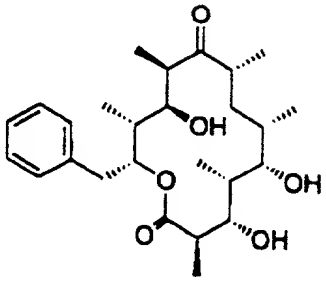

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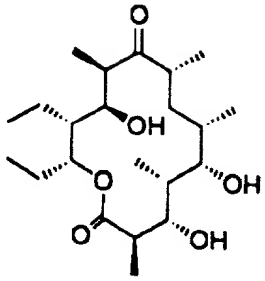
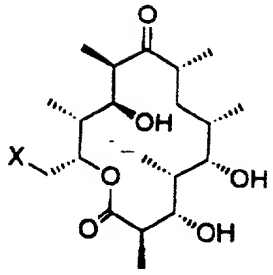


113

6G



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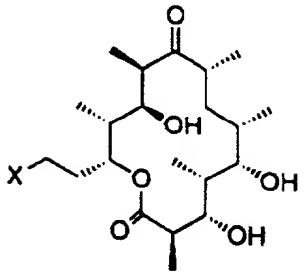
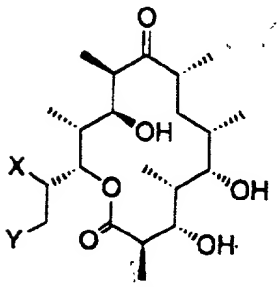


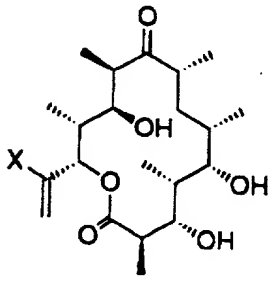
105

X = F, Cl, Br, N_3, OH, O-alkyl, S-alkyl, CN, O-acyl, O-aryl, NH_2, NH-alkyl, $N(alkyl)_2$



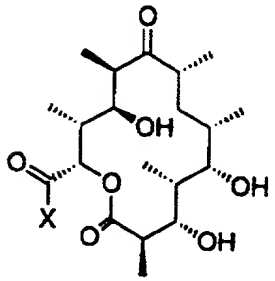
106

X = F; Y = H, Br, I,OH, O-alkyl, O-aryl, N_3, CN, S-alkyl, S-aryl
X = OH, Y = OH
X,Y = -O-, -NH-, -NR-

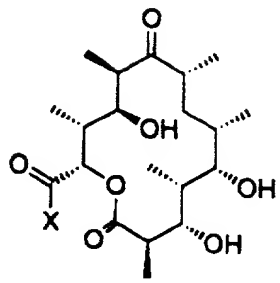


107

X = F, Cl, Br

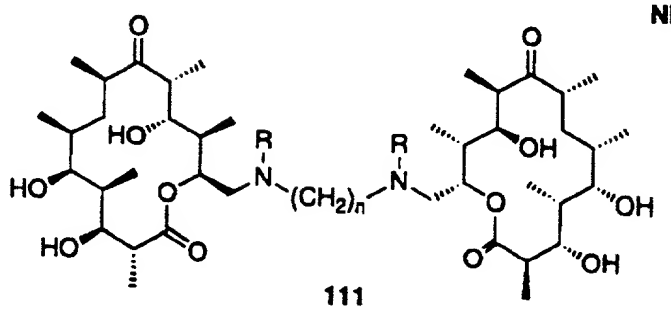


108: X=H
109: X=OH



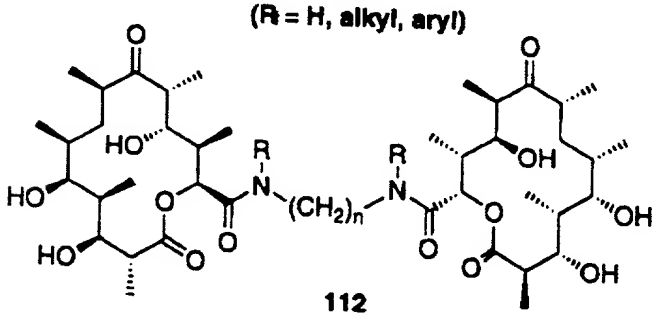
110

X= O-alkyl, O-aryl, NH_2, NH-alkyl, N-$(alkyl)_2$, NH-aryl



111

(R = H, alkyl, aryl)



112

(R = H, alkyl, aryl)

64

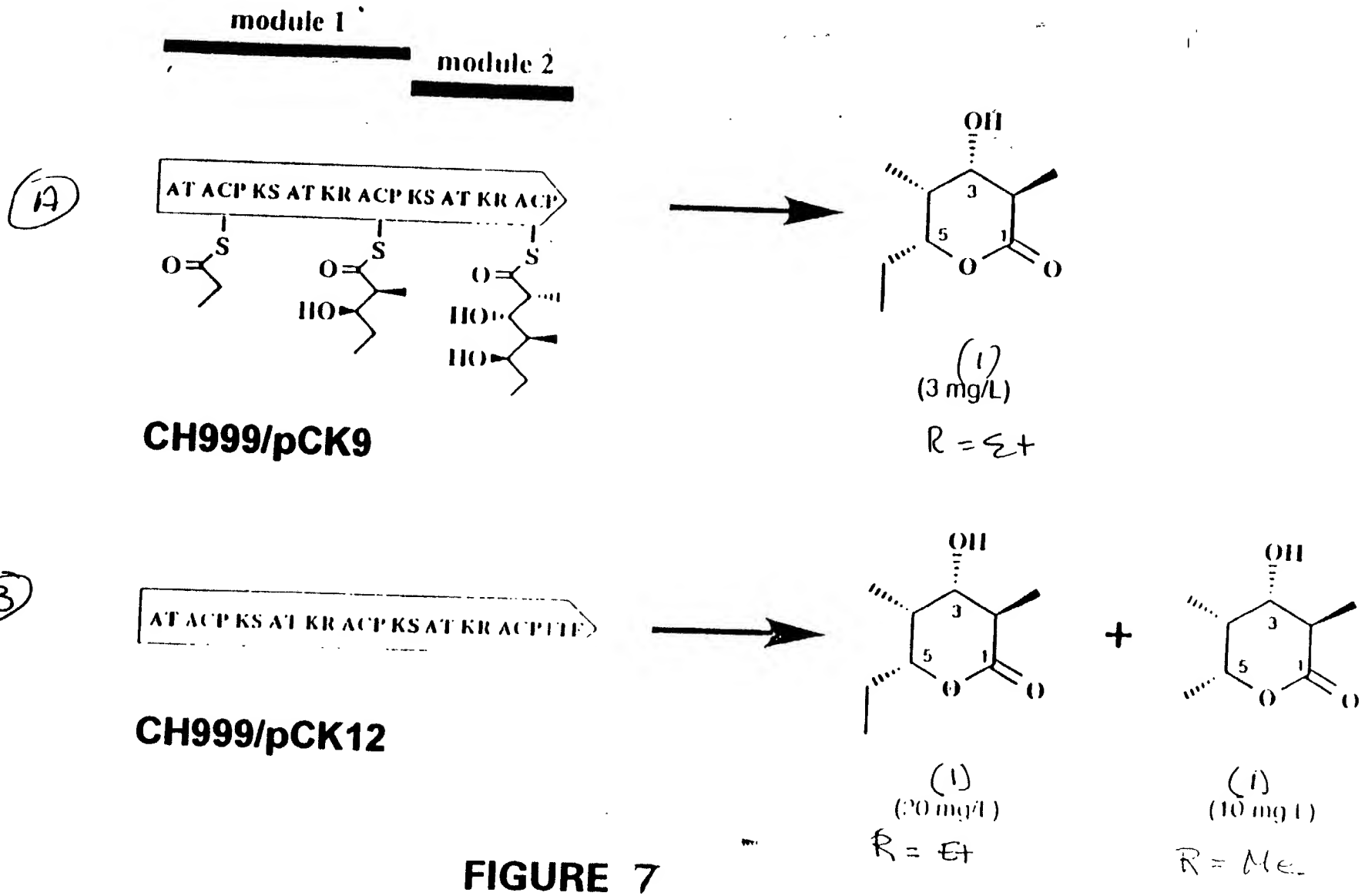


FIGURE 7

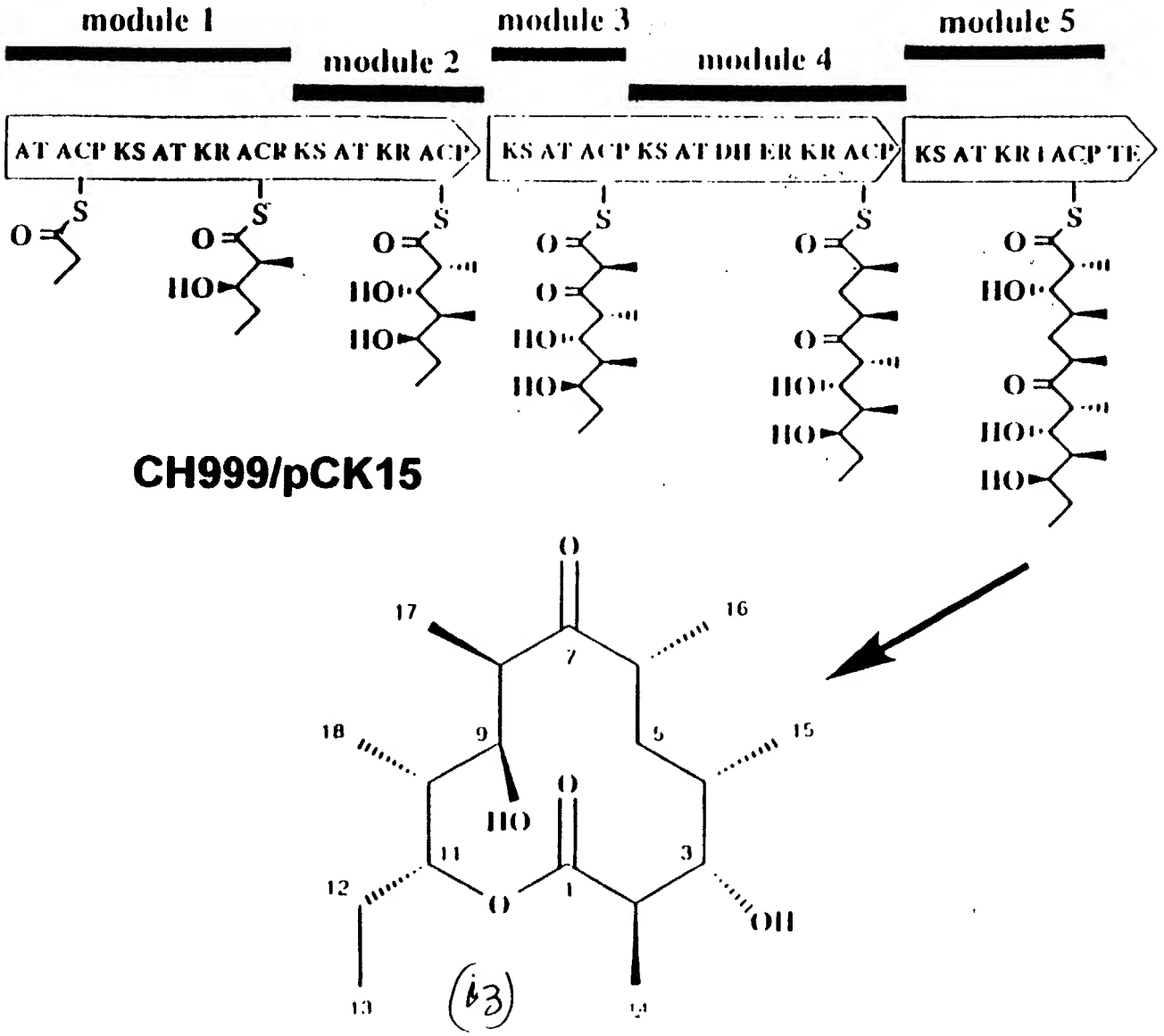


FIGURE 7

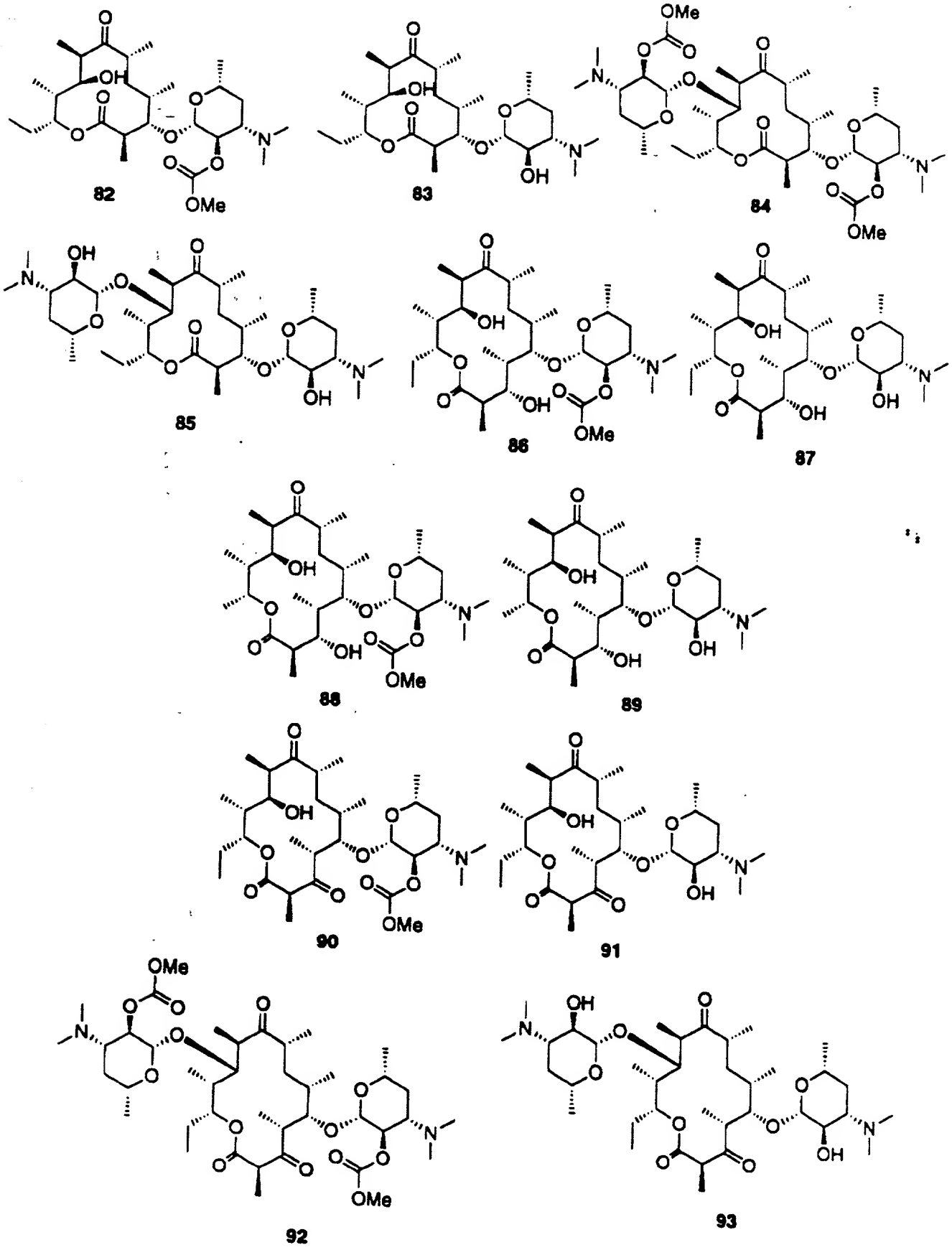
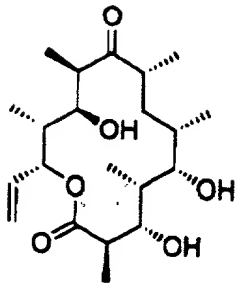
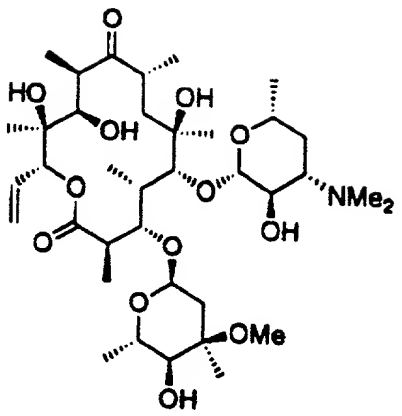


FIGURE 8



94

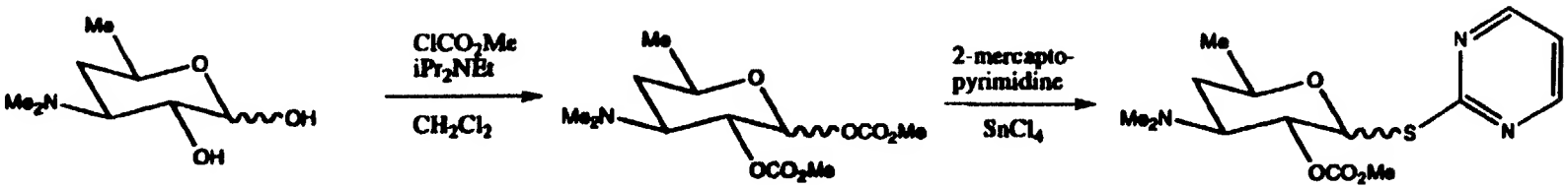


95

FIGURE 9

Figure 10

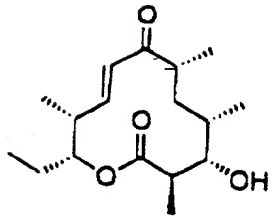
Preparation of 1-(2-mercaptomyrimidinyl)-2-O-(methoxycarbonyl)-(D)-desosamine



(D)-Desosamine

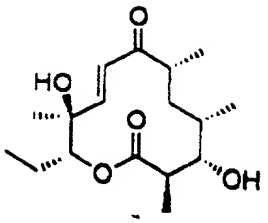
1,2-di-O-(methoxycarbonyl)-(D)-desosamine

1-(2-mercaptopyrimidinyl)-2-O-(methoxycarbonyl)-(D)-desosamine



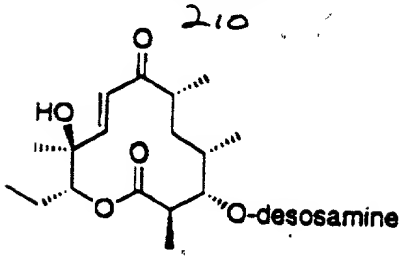
10-deoxymethynolide

210



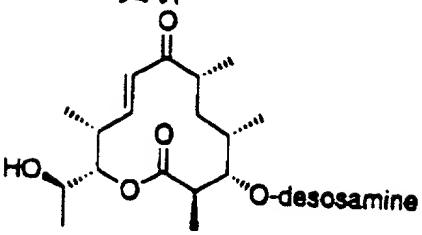
methynolide

211



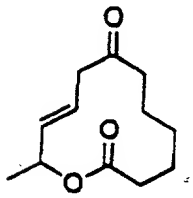
methymycin

212



neomethymycin

213



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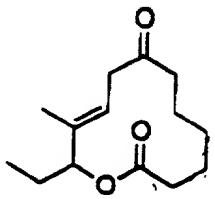

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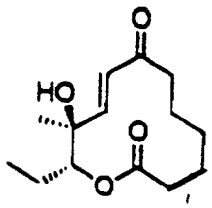
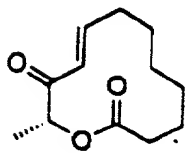


203



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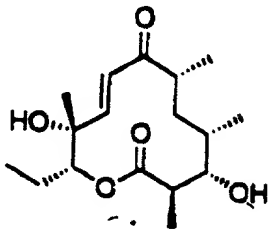
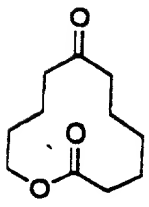


10-epi-methynolide

205



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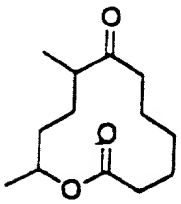
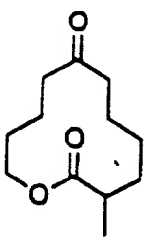


207



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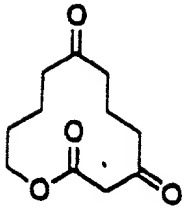
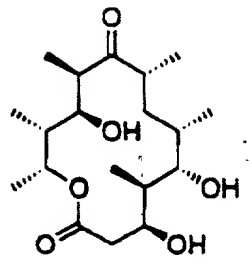
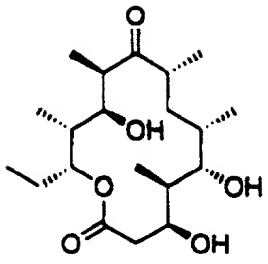


209

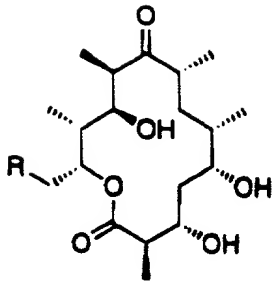
Figure 11



301



302



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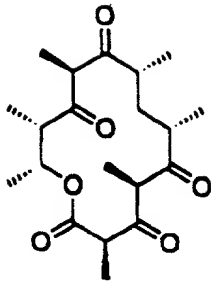

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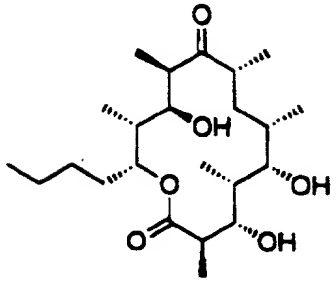

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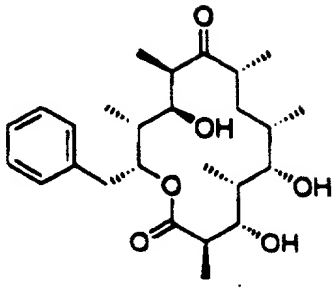

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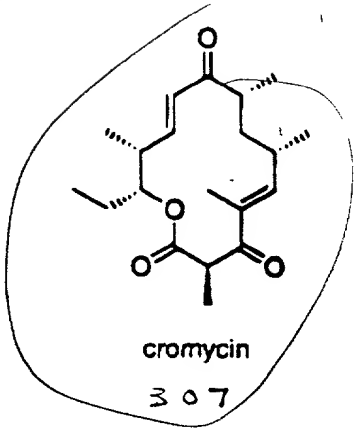
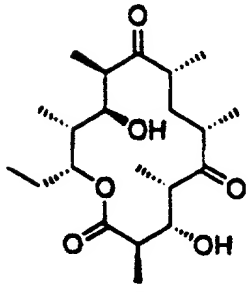


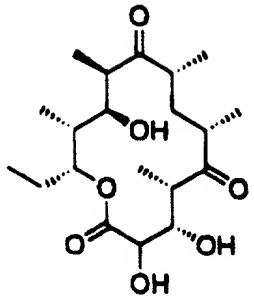
cromycin

307



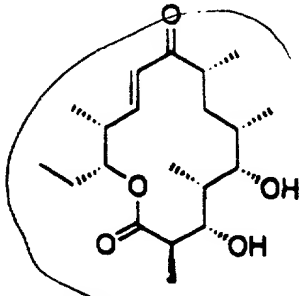
308

5-deoxy-5-oxo-6dEB

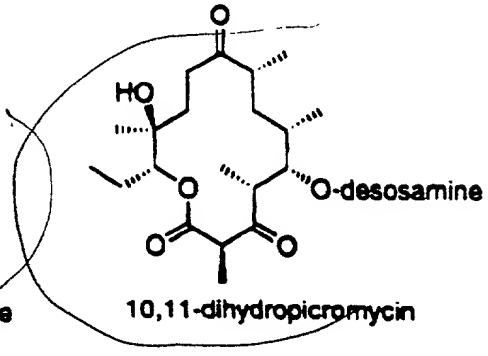


2-demethyl-2-hydroxy-
5-deoxy-5-oxo-6dEB

309



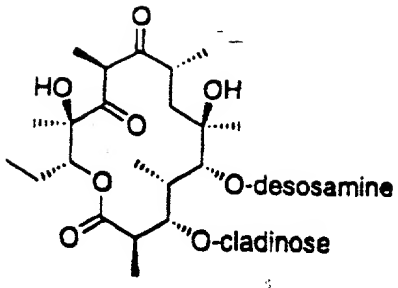
3-dihydronarbonolide



O-desosamine

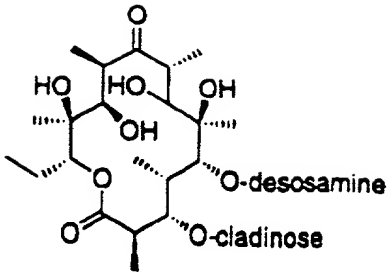
10,11-dihydropicromycin

Figure 12A



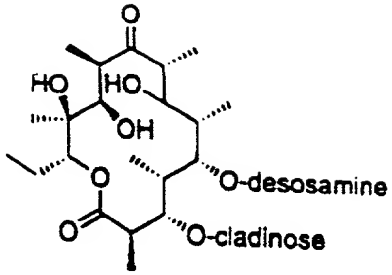
11-oxo-11-deoxyerythromycin A

312



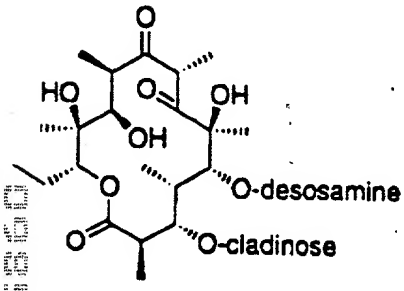
7-hydroxyerythromycin A

313



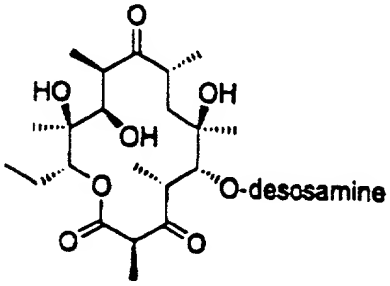
6-deoxy-7-hydroxyerythromycin A

314



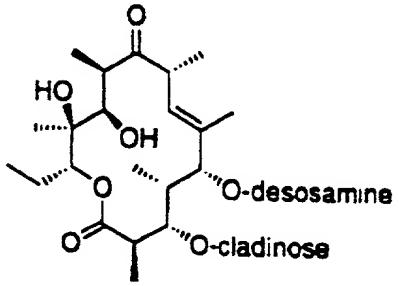
7-oxo-erythromycin A

315



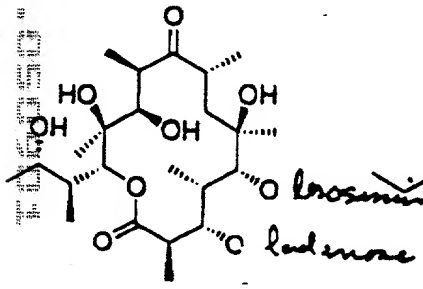
3-oxo-3-deoxy-5-desosaminyl-erythronolide A

316



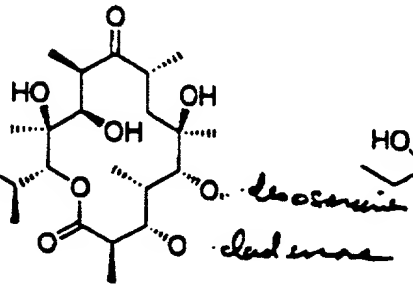
6,7-anhydro-erythromycin A

317



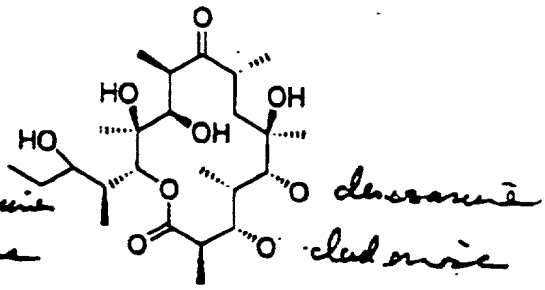
(14S,15S)-14-(1-hydroxyethyl)-erythromycin A

318



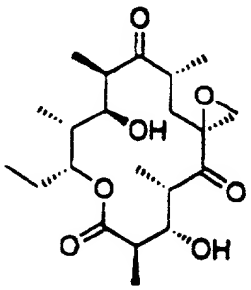
14-(1-propyl)erythromycin A

319



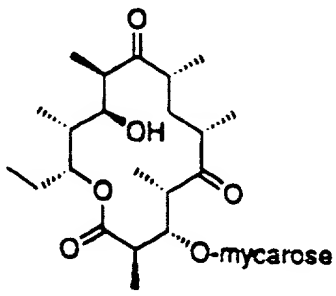
14-(1-hydroxypropyl)erythromycin A

320



5,6-dideoxy-6,6a-epoxy-5-oxo-erythronolide B

322



5,6-dideoxy-5-oxo-3-mycarosyl-erythronolide B

321